

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/007,459  
Applicants : David L. Lewis et al.  
Filed : 11/07/2001  
Art Unit : 1635  
Examiner : Gibbs, Terra C.  
Docket No. : Mirus.030.04  
For: **Inhibition of Gene Expression by Delivery of Small Interfering RNA to Post-Embryonic Animal Cells *In Vivo***

Commissioner of Patents  
PO Box 1450  
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.131

Dear Commissioner:

We, Jon A. Wolff, James Hagstrom, Hans Herweijer, David Lewis, Aaron Loomis, and Vladimir Budker, inventor(s) of the above captioned Application, hereby declare as follows:

1. We are inventors of the captioned application.

Jon A. Wolff and Vladimir Budker are the inventors of the process for intravascular injection of nucleic acid into a vessel wherein the volume and rate of the injection results in delivering the nucleic acid from inside the vessel to into an parenchymal cell of claim 1.

Dave Lewis, Jon A. Wolff, Vladimir Budker, Hans Herweijer, James E. Hagstrom, and Aaron Loomis are inventors, separately or together, on claims 11 and 14-18.

Jon A. Wolff and Vladimir Budker are also authors of the cited reference, Zhang et al. Human Gene Therapy 1999, Vol. 10, p. 1735-1737.

2. Applicants' *in vivo* nucleic acid delivery process of claim 1 was conceived prior to the effective date of the Office Action prior art references, Zimmer (Methods, 1999) and Zhang et al. (Human Gene Therapy 1999).
3. We hereby submit photocopies of laboratory notebook pages from the notebooks of researchers working under our direction, dated January 19-22, 1999, and February 10-12 and 19-24, 1999, describing mixing nucleic acid with a polymer to form a complex having a zeta potential that is less negative than the nucleic acid and injecting the complex into a vessel in a mammal in a volume and at a rate sufficient to deliver the nucleic acid to an extravascular cell, prior to the publication date of the Zimmer (Methods, 1999) and Zhang et al. (Human Gene Therapy 1999) cited in the Office Action.

Page 1 of the attached photocopies shows a description of a polycationic polymer used to form a complex with the nucleic acid. Because the polymer is cationic (at the nitrogen atoms), the polymer-nucleic acid complex less negative than the zeta potential of the nucleic acid alone. This polymer, MC00016 (or MC16), was used in the other experiments shown in this declaration.

Pages 2, 5, 8 of the attached photocopies show descriptions of complex formation between nucleic acid and polymer MC16.

Pages 2, 3, 5, 6, 8 and 9 of the attached photocopies show descriptions of the injection parameters.

Pages 4, 7, 10 and 11 of the attached photocopies show effective liver delivery following injection into tail vein.

4. It is known to us that the process performed in the notebook pages results in delivery of the nucleic acid to extravascular cells as described in the above captioned specification.
5. Development of the nucleic acid complex delivery process occurred with due diligence from conception to the filing of the application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

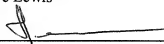
  
\_\_\_\_\_  
Jon A. Wolff date

  
\_\_\_\_\_  
James E. Hagstrom date

\_\_\_\_\_  
/Aaron G. Loomis/ 8/20/2008  
Aaron Loomis date

(deceased)  
\_\_\_\_\_  
Vladimir O. Budker date

  
\_\_\_\_\_  
Dave Lewis date

  
\_\_\_\_\_  
Hans Herweijer 8/21/08  
date

# Mirus Corporation Compound Sheet

MC Number MC00016		Lot Number		Date Submitted 11/98	
Chemical Name					
Mol. Formula					
Mol. Weight					
Factor					
Compound Class Cationic Polymer					
Project Particle Formation					
Submitted by S. Monahan					
Notebook 2-048-2					
Amt. Submitted 1.2 mg					
Amt. Remaining <del>2.5 mg</del>					
Appearance red solid					
Approved by					
Release Date		Lit. Ref			
Elemental Analysis		Analytical		Distribution	
Calculated	Found	<sup>1</sup> H NMR ✓  HPLC  Purity			
Solubility		Other 12-14, CDD diagnosis			

M16 (Bovine M3) vs. DNA + PLL-DNA in vivo

Mix OP Formulations as follows.

1- 200 $\mu$ g DNA in 2 ml H<sub>2</sub>O

2- 200 $\mu$ g DNA in 2 ml H<sub>2</sub>O

compact with ~3x charge M16 (420 $\mu$ g)

3- 200 $\mu$ g DNA in 2 ml H<sub>2</sub>O

compact with 3x charge PLL 3HK (380 $\mu$ g)

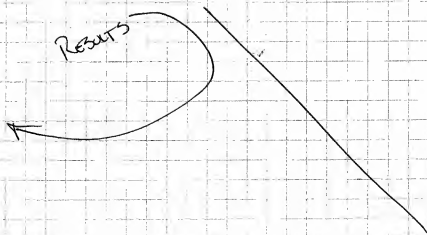
Mix with Ringers solution to 2 1/2 ml

High Pressure Tail Vein Inject

Harvest @ 24 Hours

Mice are old

High Tail Expression is a good indicator of  
a bad injection



1/21/99

Mike Lomb

Project: IM IV <u>InVasc</u> Gut Other:		EXP#: <u>InVascHP #10</u>	Date: <u>1/19/99</u>
Method: LPTail <u>HPTail</u> LPPortal HPPortal LPGut HPGut IM <u>2.5 Mils - NP</u>		Charge to: ATP PrdDev Other	
Researcher(s): <u>SEAN</u>		Particle/Compound Being Tested: <u>Naked DNA vs</u>	
Delivery Medium: Saline PBS Glu Man H2O Ringers other		<u>MIRUS MC16 vs Poly lysine</u>	
Stability Issues? <u>—</u>		Hazardous Material? <u>—</u>	Other Cautions? <u>—</u>
Time Point(s): <u>24 Hr Harvest</u>			
# of Samples: <u>3 x 3 = 9 total</u> <u>Animals</u>		Explanation/Code:	
End Result:	Expression: <u>Luciferase</u> BetaGAL GFP Ligand/SolRecep Ab Screen other	Distribution:	Fluorescence Radiation other
Organs to Assay: <u>LIVER LR/MC</u> <u>TAIL</u> <u>HEART</u>			
Notes:			
Procedure Notes:		Start Time:	
Individual Animals: Inj Notes ANIMAL #1 - Good #2 - BAD #3 - OK #4 OK #5 GREAT Fat #6 GREAT #7 GREAT #8 2nd best than #5 and #6 #9 1.5 then 1.0 none moved - quickly 1.0 Naked DNA MIRUS MC16 Poly lysine			
Procedure Performed by:		Date:	

1/20/99

IN VASC HP #10

B 9007

SER. # 1000

## MEASUREMENT ROUTINE

20 JAN 99 18:00 V.2.03

PROTOCOL NO. : 5 NAME : 50/50-10S  
 VOLUME INJ. 1 [ul] 50  
 VOLUME INJ. 2 [ul] 50  
 SEQUENCE OF INJECTIONS 1-2  
 DELAY TIME INJ 1/INJ 2 [s] 2.0  
 MEASURE BACKGROUND YES  
 MEASURING TIME BKG [s] 0.5  
 AUTOMATIC BKG SUBTRACT NO  
 MAX. BACKGROUND [RLU/s] 50  
 DELAY LAST INJ. MEAS. [s] 0.5  
 MEASURING TIME [s] 10.0  
 No diluted 10 fold - direct from aspirate sample!  
 COMMENT : TAIL

SAMPLE	RLU	% CV
1 1	305	Liver
1 2	928	Liver
2 1	716	Lung
2 2	242	Heart
3 1	6930	TAIL
3 2	334	Liver
4 1	293	Lung
4 2	77	Heart
5 1	111	Heart
5 2	247800	TAIL
6 1	76992	Liver
6 2	67295	Liver
7 1	2359	Heart
7 2	533	Heart
8 1	1502	TAIL
8 2	1757	Liver
9 1	1638	Liver
9 2	160	Lung
10 1	81	Heart

SAMPLE	RLU	% CV
11 1	150089	Liver
11 2	121558	Liver
12 1	1761	Lung
12 2	552	Heart
13 1	2156	TAIL
13 2	131955	Liver
14 1	88806	Liver
14 2	1857	Lung
15 1	762	Heart
15 2	2320	tail
16 1	336	Liver
16 2	476	Liver
17 1	77	Lung
17 2	175	Heart
18 1	243	tail
18 2	386	Liver
19 1	254	Liver
19 2	162	Lung
20 1	63	Heart
20 2	284	tail
21 1	1324	Liver
21 2	1529	Liver
22 1	101	Lung
22 2	239	Heart
23 1	199	tail
23 2	44023384	tail
MEAN	22011792	141.4
24 1	41309624	Standard
24 2	215	Standard
MEAN	20654920	141.4

## REPORT MOUSE INJECTIONS ON MC 16 CONTACTED DNA

COMPLEX 200µg CMU-LUC WITH 378µg (3X+/-)  
POLY-L-LYSINE.COMPLEX 200µg CMU-LUC WITH 400µg (3X+/-)  
MC 00016COMPLEX 200µg CMU-LUC WITH 1.2µg HISTONE H1  
(5X+/-)

200µg 'NAKED' CMU-LUC AS CONTROL

INJECT 50µg OF EACH IN 2.5mls RINGER'S SOLUTION

MOUSE 1 - 50µg DNA

MOUSE 2 - DEATH

MOUSE 3 - ~~POLY-L-LYSINE~~ + 50µg DNAMOUSE 4 - ~~POLY-L-LYSINE~~ + 50µg DNA

MOUSE 5-6 = MC 16 + DNA

MOUSE 7-8 = H1 + DNA

MOUSE 9-10 = NAKED DNA IN 500µl RINGER'S

LOW PRESSURE

MOUSE 11-12 = MC16 + DNA IN 500µl RINGER'S

12 2	596	LIVER	
MEAN	42463		139.4

13 1	977	LIVER	
13 2	173	LUNG	
MEAN	575		98.9

14 1	120	Heart	
14 2	4850	Tail	
MEAN	2885		133.3

MC 00016

#1/2

15 1	543	LIVER	
15 2	172	LIVER	
MEAN	358		73.4

16 1	96	LUNG	
16 2	33836	Heart	
MEAN	16566		148.6

17 1	35122	tail	
17 2	5642362	Re-Liver	
MEAN	2838742		139.7

Y 00016

Att. Lach

Jan 24, 1999



Project: IM IV <u>InVasc</u> Gut Other:		EXP#: <u>InVasc HP #11</u>	Date: <u>1-21-99</u>
Method: <u>LPTail</u> <u>HPTail</u> LPPortal HPGut LP Gut HPGut IM		Charge to: ATP PrdDev Other	
Researcher(s): <u>S.M.</u>		Particle/Compound Being Tested:	
Delivery Medium: Saline PBS Glu Man H2O		<u>50ng pDNA vs H1 vs</u> <u>Polylysine vs MC16</u>	
<u>Fingers</u> other		MC16 vs	
Stability Issues?		Hazardous Material?	Other Cautions?
Time Point(s): <u>24 Hours</u>			
# of Samples: <u>6 x 2 = 12</u> <sup>6 Samples</sup> <sub>12 Animals</sub>		Explanation/Code:	
End Result:	Expression:	Distribution:	
	<u>Luciferase</u> BetaGAL GFP Ligand/SolRecep Ab Screen other	Fluorescence Radiation other	
Organs to Assay:	<u>Lung</u>	<u>TAIL</u>	
<u>Liver LA/MC</u>	<u>Heart</u>		
Notes:			
Procedure Notes:		Start Time:	
Individual Animals:			
<p>ANIMALS</p> <p>pDNA &lt; 1 - 2 1/2 ml fast</p> <p>2 - 1 1/2 ml died during second attempt</p> <p>PLL &lt; 3 - 2 1/2 Great ing</p> <p>4 - 2 1/2 Great ing</p> <p>MC16 &lt; 5 - OK</p> <p>6 - Great</p> <p>H1 &lt; 7 - 2 ml then 15 min later 1/2 ml more</p> <p>8 - 2 times then in</p> <p>pDNA &lt; 9 LV 500ml great ing</p> <p>10 LV 500ml great ing</p> <p>MC16 &lt; 11 LV 500ml great ing</p> <p>12 LV 500ml great ing</p>			
Procedure Performed by:		Date:	

LB 9507

SER. # 1088

mouse tail injections

## MEASUREMENT ROUTINE

22 JAN 99 17:54 V.2.03

PROTOCOL NO. : 5  
 VOLUME INJ. 1 [u] 50  
 VOLUME INJ. 2 [u] 50  
 SEQUENCE OF INJECTIONS 1-2  
 DELAY TIME INJ 1/INJ 2 [s] 2.0  
 MEASURE BACKGROUND YES  
 MEASURING TIME BKG [s] 0.5  
 AUTOMATIC BKG SUBTRACT NO  
 MAX. BACKGROUND [RLU/s] 50  
 DELAY LAST INJ./MEAS. [s] 0.5  
 MEASURING TIME [s] 10.0

NAME : 50/50-108

COMMENT : TAIL

SAMPLE RLU % CV

#1  
 1 1 1188703 Liver  
 1 2 856981 Liver  
 MEAN 907842  
 2 1 14332 Lungs  
 2 2 3156 Heart  
 MEAN 8744  
 2.2nd MEAN  
 HI Pressure  
 3 1 2589 Tail

3 2 121867 Liver  
 MEAN 62229 100.5

#3  
 4 1 67106 Liver  
 4 2 1176 Lungs  
 MEAN 34441 100.5

5 1 963 Heart  
 5 2 212 Tail  
 MEAN 508 92.4

#4  
 6 1 35925 Liver  
 6 2 31202 Liver  
 MEAN 90564 100.0

7 1 1549 Lungs  
 7 2 227 Heart  
 MEAN 888 100.0

#5  
 8 1 1289522 Liver  
 8 2 882382 Liver  
 MEAN 1085952 26.5

9 1 14264 Lungs  
 9 2 3845 Heart  
 MEAN 9855 81.4

10 1 29586 Tail

#6  
 -10 2 7184168 Liver  
 MEAN 3606297  
 11 1 6394684 Liver  
 1 1 86387 Lungs  
 1 2 20830 Heart  
 MEAN 53609 86.5  
 2 1 14675 Tail

2 2 482 Liver  
 MEAN 7529 100.4

#7  
 3 1 2743 Liver  
 3 2 242 Lungs  
 MEAN 1493 100.5

4 1 156 Heart  
 4 2 1035 Tail  
 MEAN 506 100.4

#8  
 5 1 380 Liver  
 5 2 315 Liver  
 MEAN 340 100.0

6 1 124 Lungs  
 6 2 144 Heart  
 MEAN 134 10.6

7 1 4339 Tail  
 7 2 962 Liver  
 MEAN 2651 90.1

#9  
 8 1 446 Liver  
 8 2 147 Lungs  
 MEAN 297 70.0

9 1 470 Heart  
 9 2 404270 Tail  
 MEAN 206570 100.1

10 1 219 Liver  
 10 2 342 Liver  
 MEAN 281 31.0

#10  
 11 1 103 Lungs  
 11 2 98 Heart  
 MEAN 101 3.5

12 1 84330 Tail

M000016

HISIDE

Low Pressure

DNT

Pols Lygine

M000016

## MC 16 - BAZEN 4 HIGH PRESSURE INJECTIONS AND CONTROLS

MC 55 + MC 56 ARE NOT SOLUBLE IN HEPES BUFFER - SO ALL FORMULATION WILL BE ORIGINALLY DONE IN DMSO.

Duplicate mice - 100 $\mu$ g DNA - pCI LUX each mouse - CONTACT 200 $\mu$ g EACH AGENT

1+2 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO  $\rightarrow$  ADD 2.5 ml's RINGER'S

MC 16 = 1.7% 3+4 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 16-4 [3x+] 1mg  $\rightarrow$  ADD 2.5 ml's RINGER'S

5+6 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 16-5 [3x+] 1mg  $\rightarrow$  ADD 2.5 ml's RINGER'S

7+8 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 55 [-3x+] 1mg  $\rightarrow$  ADD 2.5 ml's RINGER'S

9+10 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 56 [-3x+] 1mg  $\rightarrow$  ADD 2.5 ml's RINGER'S

MC 57 = 0.56% 11+12 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 57 [-3x+] 336 $\mu$ g  $\rightarrow$  ADD 2.5 ml's RINGER'S  
MC 58 = 0.51%

13+14 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 58 [-3x+] 324 $\mu$ g  $\rightarrow$  ADD 2.5 ml's RINGER'S

MC 59 = 0.71 15+16 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 59 [-3x+] 474 $\mu$ g  $\rightarrow$  ADD 2.5 ml's RINGER'S

MC 60 = 0.78 17+18 = 200 $\mu$ g DNA + 300 $\mu$ l DMSO + MC 60 [-3x+] 468 $\mu$ g  $\rightarrow$  ADD 2.5 ml's RINGER'S

 $\rightarrow$  FORMULATION PROBLEMS

MC 16-5 IS NOT SOLUBLE - IT IS A MASS OF LARGE AGGREGATES.

MC 55 FALLS OUT OF SOLUTION WHEN IT HITS RINGER'S.

MC 59 CLOUDS UP WHEN IT HITS RINGER'S

## INJECTIONS

RESULTS OVER  $\rightarrow$ 

1- GREAT

11- GREAT

13- GREAT INJ

2- A LOT SOME FORMULATION

12- GREAT

14- GREAT INJ

3- GREAT

15- GREAT INJ

4- A LITTLE SLOW ~ 10-12 SEC STARD BREATHING

16- GREAT INJ

5- FORMULATION KILLED IT - GOOD INJECTION

17- GREAT INJ

6- GREAT INJECTION

18- GREAT INJ

7- 2.2 ml ONLY

8- GREAT INJ

9- GREAT INJ

10- GOOD INJ - SOME BREATHING

APR LOONING

FEB 22, 1999

Project: IM IV <u>InVasc</u> Gut Other:		EXP#: <u>InVascHP #12</u>	Date: <u>2/22/99</u>
Method: LPTail <u>(HPTail)</u> LPPortal HPPortal LPGut HPGut IM			Charge to: ATP PrdDev Other
Researcher(s): <u>S.M. / LOOMIS</u>		Particle/Compound Being Tested: <u>M16-4 M55 M57 M59 vs pDNA</u> <u>M16-5 M56 M58 M60</u>	
Delivery Medium: Saline PBS Glu Man H2O Ringers <u>(other) DMSO</u>		Hazardous Material? <u>          </u>	
Stability Issues? <u>          </u>		Other Cautions? <u>          </u>	
Time Point(s): <u>24 Hours - Harvest</u>			
# of Samples: <u>9 x Z = 18 ANIMALS</u>		Explanation/Code:	
End Result:	Expression: <u>Luciferase</u> <u>BetaGAL</u> <u>GFP</u> <u>Ligand/SolRecep</u> <u>Ab Screen</u> <u>other</u>	Distribution:	Fluorescence Radiation other
Organs to Assay:	<u>Liver LR/M6</u> <u>Spleen</u>	<u>Lungs</u> <u>Heart</u>	<u>Kidneys</u> <u>Tail</u>
Notes: <u>H2 Volume Tail</u> <u>* WITH DMSO - ANIMAL SHOWN AFTER INJ.</u>			
Procedure Notes: <u>5 Wk Old</u>		Start Time:	
Individual Animals: <u>ANIMALS - Inj</u> <u>100 ug pDNA</u> <u>#1 Gneat</u> <u>#2 Some out 1st hole</u> <u>M16-4</u> <u>#3 Gneat</u> <u>#4 Some out slow</u> <u>M16-5</u> <u>#5 DEAD</u> <u>#6 Slow recovery</u> <u>M55</u> <u>#7 2-2 ml - Blood Clots</u> <u>#8 Gneat</u> <u>M56</u> <u>#9 Good ing - Shaking after inj.</u> <u>#10 Good ing - Very light em</u> <u>M57</u> <u>#11 Gneat no convulsion</u> <u>M58</u> <u>#12 Gneat Shaking</u> <u>#13 Gneat</u> <u>M59</u> <u>#14 Gneat</u> <u>#15 Gneat</u> <u>#16 Gneat</u>		<u>Hamlet observations</u> <u>&gt; Major damage to liver</u> <u>#2</u> <u>&gt; Some damage - spots</u> <u>&gt; clots</u> <u>&gt; light color spots</u> <u>&gt; Blood clots</u> <u>&gt; very light em</u> <u>&gt; large clots on liver</u> <u>&gt; white spots</u> <u>&gt; Gneat insitons</u>	
Procedure Performed by: <u>Mark Nofle</u>		Date: <u>2/22/99</u>	

(Also Refr To Book PAGE 141)

2/24/99 Samples born 23<sup>rd</sup> frozen cryopreserved 24<sup>th</sup>  
 INVASC HP #12

2.5 ml High Volume & pressure

2/24/99

9507

SER. # 1088

MEASUREMENT ROUTINE

24 FEB 99 09:09 V.2.03

PROTOCOL NO. : 8 NAME : 10  
 VOLUME INJ. 1 [ul] 50  
 VOLUME INJ. 2 [ul] 50  
 SEQUENCE OF INJECTIONS 1->2  
 DELAY TIME INJ 1/INJ 2 [s] 2.0  
 MEASURE BACKGROUND YES  
 MEASURING TIME BKG [s] 0.5  
 AUTOMATIC BKG SUBTRACT NO  
 MAX. BACKGROUND [RLUs] 50  
 DELAY LAST INJ./MEAS. [s] 0.5  
 MEASURING TIME [s] 10.0

COMMENT : DR.M

SAMPLE RLU

ANIMAL #2  
 1 26058686 LR > Liver  
 2 21630646 mc  
 3 5847298 Spleen 100mg Naked DNA  
 4 1014489 Lung  
 5 560690 Heart  
 6 694563 Kidneys  
 7 13254 tail  
 8 1566483 LR  
 9 1191481 mc (Liver damaged & trashed!)  
 10 516558 Spleen  
 11 95148 Lung 100mg Naked DNA  
 12 68804 Heart  
 13 28135 Kidneys  
 14 36783 tail

S.M. Complexes

24 Hour harvest

LIVERS 10x dilution each!

15 12076003 LR > Liver  
 16 8672595 mc  
 17 3967398 Spleen #3  
 18 649693 Lung MC16-4  
 19 358458 Heart  
 20 88135 Kidneys  
 21 22478 tail  
 22 20836924 LR  
 23 14335173 mc #4 = 7  
 24 10303277 Spleen MC16-4  
 25 2205514 Lung  
 26 319212 Heart  
 27 435213 Kidneys  
 28 34322 tail  
 29 15893273 LR #6 - ~~mc~~  
 30 14260842 mc > Liver MC16-5 2 during shot  
 31 3568655 Spleen  
 32 663279 Lung  
 33 212093 Heart  
 34 2751592 Kidneys splens  
 35 7972 tail ne  
 \*5 dead - ~~mc~~ ne  
 3 RNA

INVASIVE NP #12

MC-55 ↓	
36	17862760 LR > Liver
#7 37	15428335 MC
38	356868 Spleen
MC-55-39	392596 Lung
40	215870 Heart
41	75095 Kidney
42	2859 Tail
#8 43	13063372 LR > Liver
44	13417665 MC
MC-55-45	4958813 Spleen
46	785182 Lung
47	231348 Heart
48	184282 Kidney
49	63918 Tail

MC-57 ↓	
64	6892050 LR > Liver
#11 65	5883566 MC
66	2794699 Spleen
67	261024 Lung
68	122821 Heart
69	151890 Kidney
70	38516 Tail
#12 71	17868750 LR > Liver
72	11401863 MC
73	4176665 Spleen
74	678634 Lung
75	375063 Heart
76	186018 Kidney
77	5861 Tail

MC-59 ↓	
#15 92	78586 LR > Liver
93	54733 MC
94	114178 Spleen
95	35211 Lung
96	48888 Heart
97	48360 Kidney
98	9235 Tail
#16 1	285662 LR > Liver
2	262457 MC
3	16426 Spleen
4	18562 Lung
5	15567 Heart
6	9187 Kidney
7	4811 Tail

MC-56 ↓	
50	5976220 LR > Liver
#9 51	5326380 MC
MC-56 52	1342129 Spleen
53	1463423 Lung
54	128175 Heart
55	186433 Kidney
56	26584 Tail
57	2482764 LR > Liver
#10 58	1433567 MC
MC-56 59	499820 Spleen
60	113231 Lung
61	63884 Heart
62	88860 Kidney
63	191769 Tail

MC-58 ↓	
#13 78	38968612 LR > Liver
79	23492376 MC
80	7578113 Spleen
81	1440983 Lung
82	882760 Heart
83	624041 Kidney
84	12032 Tail
#14 85	11969210 LR > Liver
86	7973374 MC
87	1864613 Spleen
88	388536 Lung
89	251567 Heart
90	363527 Kidney
91	11889 Tail

MC-60 ↓	
#17 8	769642 LR > Liver
9	669180 MC
10	13547 Spleen
11	15585 Lung
12	2570 Heart
13	12769 Kidney
14	325391 Tail

Number 18 died during night

2/24/99  
S.M. Complexes  
High Volume  
2.5 ml  
100mg, DNA